THE DISTRIBUTION AND OCCURRENCE OF THE GENUS *SAPERDA* F. (COL.: LAMIIDAE) IN GREAT BRITAIN

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THREE species of the genus are native to this country of which *Saperda carcharias* is the most destructive to young trees, as is *S. populnea* to a lesser degree, but *S. scalaris* is non-injurious. All our species to a major or minor extent indulge in the peculiar habit of first incising a suitable orifice in the host tree of their choice before depositing the ova therein. The adults, too, are characteristically deciduous leaf eaters. *S. carcharias* and *S. populnea* confine their attention mainly to poplars and willows but *S. scalaris* is polyphagous.

Counties and vice-counties are represented by Brownean alphabetical symbols (Kaufmann, 1989) those italicised indicating a wide distribution (but see text *infra* relating to south Lancashire — SL); bracketed letters refer to unconfirmed records; a dagger (†) signifies an imported specimen.

Saperda carcharias L.

One of our largest Longhorns, up to 3cm long, which has become very scarce because of over-collecting. Distribution centres on three distinct zones, one north Scottish, another ranging across central and northern England, and the third covering some Home Counties, East Anglia and the Fens.

ENGLAND: BK *CB* DM† DY EK *EN ES* EY GW HT *HU LN* LS MX MY NE NM NO NY SE SL *WS* WY†

WALES: CD

SCOTLAND: AS EI EL. There is a record from Sutherland but no further data have been traced.

The Large Poplar Longhorn bites a slit in the bark of the brood tree in which it lays the ova during the summer or later. Uniquely for a Cerambycid, the egg overwinters (Ritchie, 1920; Duffy, 1953), the larva hatching in the following spring. It may be found in the sappy trunks and thicker branches of trees growing in wet woodlands and along river banks, such as aspen (the preferred pabulum), black poplar, common osier, goat willow, hybrid black poplar, Lombardy poplar, oak (unusually), *Populus dilatata, P. monilifera, P. ontariensis* and white poplar.

Abroad, the egg of *S. carcharias* is parasitised by the Eupelmidid, *Eudorus caudatus* Thom. (Chalcidoidea), but the additional use of insecticides in attempts to contain the larvae of the beetle have had an adverse effect upon the oophagon (Arru, 1970).

The larva is parasitised by these Ichneumonidae:—

Ephialtes populaeus Ratz., *Ischnoceros filiformis* Kriechb., *I. rusticus* Grav., *Neoxorides nitens* Grav., *Rhimphoctona fulvipes* Holm. and

Xylophrurus lancifer Grav. It is also attacked by the fungus, *Entomophthora grylli.*

The life cycle lasts some four years, a period taking into account the long overwintering stage of the egg. Pupation occurs in May and June. The imago eclodes after a month or so and may be found from July until October.

The metamorphosis and destructive habits of this beetle have been very fully described by Ritchie (1920), so it suffices to say that the adult not only gnaws thin girdles round the bark of the juicier twigs of the host plant, thus releasing the sap which other insects such as wasps, ants and Ladybirds enjoy, but it also eats the foliage, nibbling it, including the ribs, leaving large fimbriated holes. The young tree buds and shoots, too, are attacked and bitten into (Strojny, 1975). Feeding takes place at dusk, the females ceasing to eat after ovipositing.

In strong sunshine, the beetles fly actively and they are attracted to artificial lights; at other times they sit motionlessly among the leaves where their coloration makes them difficult to spot, or else they rest high up the trunk and branches just out of reach; only occasionally have they been found settled on old posts. Both sexes stridulate.

S. scalaris L.

One of the most beautiful of our medium-sized Longhorns, formerly regarded as a northern if not exclusively Scottish species, in many counties in which it occurs. *S. scalaris* has a scattered distribution in England, centred principally in the Midlands; its range now covers some Welsh counties and the beetle probably extends more widely than present records suggest.

ENGLAND: CB CH CU DM *DY EY* (HF) HT L NM NY SH *SL* (but see below) SN SR ST WY

WALES: CD CR MN

SCOTLAND: AM AS B DF EI EL KB KD LA NS PM PN RE S SG SS WI

Over-enthusiastic collecting last century by "artisan" Coleopterists and the subsequent urbanisation of the Manchester area and its well-known Mosses and Houghs led to the wiping out of *S. scalaris* throughout that region and as far as Derbyshire and Staffordshire (Sharp, 1908); fortunately, however, the species was re-discovered in the late 1940s by R. Wilding (Raven Report, 1950) and others (Fraser, 1950a) in neighbouring Cheshire, where it turned out to be quite common around Delamere. It is to be hoped that *scalaris* is allowed to continue breeding in what remains of the forest lands there.

The adult beetle sinks its mandibles deep into the brood tree and, after carefully inspecting its handiwork, lays one or two eggs in the hole it has excavated (Fraser, 1950b). The trunks and branches of dying trees or those past their prime are favoured; these include alder, apple, aspen, beech,

birch, bird cherry, blackthorn, crabapple, elder, elm, hawthorn, hazel, holly, hornbeam, maple, oak, including posts and palings retaining their bark, pear, poplar, rowan, sour cherry, sweet chestnut, walnut, white poplar, wild cherry and willow.

The larva is found in trees already heavily infested by the Hymenopteron, *Xiphydrus camelus* L., more particularly alders (Lesne, 1893). The former is found as well in dead trees attacked by *Clytus arietis* L., *Leiopus nebulosus* L. and other Cerambycid larvae such as *Rhagium bifasciatum* F. and *R. mordax* Deg.

The larva of *S. scalaris* is parasitised by the Ichneumonids, *Orthocentrus fulvipes* Grav. and *Xorides praecatorius* F. and the Braconid. *Meteorus tabidus* Wesm.

The larva in its final stages apparently overwinters, pupating in March or April, the perfect insect ecloding a month or so later. Metamorphosis may stretch up to three years, but on average it takes two years to complete (Klausnitzer & Sander, 1981).

The beetles are found from April onwards until August. They are diurnal, flying actively in bright sunshine. According to Demelt (1966), however, the males, which are rarely seen, are nocturnal in habit, albeit attracted to light traps; the females, on the other hand, are less active, tending to remain either on their host tree or resting on log piles. These comments are at variance with the careful observations of Fraser, quoted *in extenso* by Duffy (1953). The imagines are phytophagous, nibbling typically elongated slits along the leaf ribs of deciduous trees, beech and oak being particularly favoured.

S. scalaris, with its beautifully patterned elytra covered in golden-green pubescence on a black background, is subject to very considerable variation; over sixty forms are figured by Villiers (1978), a number of which doubtless occur in this country.

S. populnea L.

Fairly well, if locally distributed in England, but absent from the south-west peninsula and increasingly scarce in the north of the country. *S. populnea,* the Small Aspen Longhorn, is still unrecorded from Wales and Scotland.

ENGLAND: BD *BK* BX CB CU DT DY EK EN *ES EX EY* GE GW HF *HT* HU *IW* L *LN* LR MM *MY* NE NH NM NO NS *OX* SE *SH SR* ST SW SY *WK* WL WO WS *WW* WX *WY*

Before ovipositing, the beetle bites characteristically a horseshoe-shaped abrasion to cut off the sap on the bark of thin twigs and slender branches of young and healthy trees and bushes, in the inner surface of which the egg is inserted. The affected plant responds by forming a conspicuous protective gall round the incision upon which cells the hatched larva at first feeds before eating into the pith. The damage inflicted is particularly well illustrated by Demelt (1966) and Hansen (1966).

Insofar as our native Longhorns are concerned, this *Saperda* is the only gallicole responsible for such plant swellings, but its larval galls should not be confused with those occasioned by the Clearwing moth, *Aegeria,* which are smaller, less noticeable, and sometimes present in the same brood tree.

Saperda galls, sometimes only an inch apart, may be found on the following growths:— ash, aspen, the favourite pabulum, Balsam poplar, birch, Black poplar, Broad-leaved sallow, Common osier, Crack willow, Goat willow, Grey willow, hazel, Hybrid black poplar, Lombardy poplar, *Populus heterophylla, P. ontariensis,* Western balsam poplar, White poplar and White willow.

The larva is attacked by over fifty parasitic Hymenoptera and Diptera, so not surprisingly up to 98% never reach maturity (Klausnitzer & Sander, 1981); *Gecinus* spp., too, exact their toll. The long list of parasites includes:— Hymenoptera: *Apanteles hoplites* Ratz., *Ascogaster rufidens* Wesm., *Atanycolus denigrator* L., *Brachycentrus brachycentrus* Grav., *Bracon discoideus* Wesm., *B. multiarticulus* Ratz. (?), *Chelonus laevigator* Grav., *C. nigrinus* Ratz., *Cryptus viduatorius* F., *Dacnusa gedanensis* Ratz., *Deuteroxorides albitarsus* Grav., *Diadromus subtilicornis* Grav., *Echthrus populneus* Giraud., *E. nubeculatus* Grav., *E. reluctatior* L., *Entydon chalybaeus* Grav., *Ephialtes abbreviatus* Thoms., *E. extensor* L., *E. heteropus* Thoms., *E. insignis* Hab., *E. luteipes* Thoms., *E. manifestator* L., *E. messor* Grav., *E. populneus* Ratz., *E. tuberculatus* Fourcr., *Glypta ephippigera* Kriechb., *G. rostratus* Holmgr., *G. teres* Grav., *Gonicryptus analis* Grav., *Habrocytus tenuicornis* Forst., *Helcostizus brachycentrus* Grav., *Hermiteles melanarius* Grav.,*H. modestus* Grav., *Idiolispa analis* Grav., *Iphiaulax impostor* Scop., *Lycorina triangulifera* Holmgr., *Meteorus tabidus* Wesm., *Pachyneuron aeneicorne* Ratz., *Pimpla alternans* Grav., *P. capulifera* Kriechb., *Proscus suspicax* Wesm., *Pteromalus aeneocornis* Ratz., *Torymus macrocentrus* Grav., *T. quercinus* Boh., Xylophrurus lancifer Grav. The Diptera comprise *Atropidonia irrorata* Meig., *Digonochaeta setipennis* ab. *spinipennis* Meig., (?), *Dionea nitidula* Meig., *Endorus caudatus* Thoms., *Masicera sylvatica* Fln., *Pelatachina tibialis* Fln. (?), *Sarcophaga albiceps* Meig. (?). Those Diptera so marked have been queried by Emden (1950) but other parasitic flies are confirmed by Demelt (1966). The twigs also attract the attention of woodpeckers.

Transformation into the pupa takes place a year later and after overwintering the surviving imagines eclode in April and May, metamorphosis taking two years to complete.

The adult beetles are found from May until July, usually upon the parent tree whose leaves and bark they eat. They take flight on sunny days, settling on piled wood and herbage; they are also attracted to household lights.

Abroad, where it is more common, *S. populnea* is classed as an injurious insect, although in this country any material harm it causes is largely

confined to osier beds and withies. The species has long been known here and is illustrated by Martyn (1792).

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Larva of *Celastrina argiolus* L., Holly Blue (Lep.: Lycaenidae) feeding on sallow

On 24th August 1989 I beat a final instar larva of *Celastrina argiolus* out of a common sallow tree (*Salix cinerea*) which had no ivy growing on it. In captivity it fed from the upper side of the sallow leaves and left just a network of veins before moving on to another leaf. The larva had very pronounced red dorsal and lateral stripes. The fully fed larva and pupa were unusually small. A very small female butterfly emerged on 8th May 1990 but failed to expand its wings properly. I was unable to measure the wingspan and so I measured the body length which was 8mm compared with 11mm for a normal female.

The larva of *argiolus* has never before been recorded as feeding on sallow. It does however appear to be an unsuitable foodplant for normal development.— Dr B.P. HENWOOD, 4 The Paddocks, Abbotskerswell, Newton Abbot, Devon.